

Amendments to the Claims

This listing of claims will replace all prior versions and listings of claims in the application:

Listing of Claims

A1

1. (Currently Amended) A tunable isolator circuit comprising:
an isolator comprising an input port, an output port and an isolation port;
a ferro-electric tunable component coupled to the isolator;
a matching circuit coupled to the isolator and comprising the ferro-electric tunable component;
~~a control line operably coupled to the ferro-electric component;~~
~~a control source electrically coupled to the control line, the control source configured to transmit a control signal on the control line;~~
wherein the ferro-electric component, responsive to ~~a~~ the control signal, adjusts the impedance of the matching circuit, and wherein the matching circuit and isolator are integrated on one substrate.
2. (Currently Amended) The tunable isolator circuit of claim 1, wherein the ferro-electric tunable component comprises a ferro-electric tunable capacitor.

3. (Canceled)

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4. (Currently Amended) The tunable isolator circuit of claim 1, wherein the matching circuit comprises:
an output matching circuit comprising a matching circuit chosen from a group consisting of an isolator-to-diplexer matching circuit and an isolator-to-multiplexer matching circuit, wherein the output matching circuit is coupled to the output port of the isolator and to an input port of a device chosen from a group consisting of a diplexer and a multiplexer.
5. (Currently Amended) The tunable isolator circuit of claim 4, wherein the input matching circuit further comprises a second ferro-electric tunable component.

6. (Currently Amended) The tunable isolator circuit of claim 5, wherein the second component comprises a tunable ferro-electric capacitor.

7. (Currently Amended) The tunable isolator circuit of claim 4, further comprising an input matching circuit comprising a power amplifier-to-isolator matching circuit, wherein the input matching circuit is coupled to the output port of the power amplifier and to the input port of the isolator..

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8. (Currently Amended) The tunable isolator circuit of claim 1, wherein the matching circuit comprises:

an input matching circuit comprising a power amplifier-to-isolator matching circuit, wherein the input matching circuit is coupled to the output port of a power amplifier and to the input port of the isolator.

9. (Currently Amended)-The tunable isolator circuit of claim 8, wherein the output matching circuit further comprises a second ferro-electric tunable component.

10. (Currently Amended) The tunable isolator circuit of claim 9 10, wherein the second component comprises a tunable ferro-electric capacitor.

11. (Currently Amended) The tunable isolator circuit of claim 1, further comprising an isolation port matching circuit coupled between an electrical ground and the isolation port wherein the isolation port matching circuit comprises a second ferro-electric tunable component.

12. (Currently Amended) The tunable isolator circuit of claim 11, wherein the second tunable component comprises a ferro-electric tunable capacitor.

13. (New) The tunable isolator circuit of claim 4, wherein the output matching circuit matches a natural output impedance of the isolator to a natural input impedance of the device coupled to the output port of the isolator, thereby reducing non-linear distortion of the ferro-electric component and permitting operation at higher power levels.

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14. (New) The tunable isolator circuit of claim 13, wherein the device coupled to the output port of the isolator is a duplexer, and wherein the output matching circuit matches from about 12.5 ohms at the isolator output port to about 12.5 ohms at the duplexer input port.

15. (New) The tunable isolator circuit of claim 8, wherein the input matching circuit matches a natural output impedance of the power amplifier to a natural input impedance of the isolator, thereby reducing non-linear distortion of the ferro-electric component and permitting operation at higher power levels.

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16. (New) The tunable isolator circuit of claim 15, wherein the input matching circuit matches from about 2 ohms at the power amplifier output port to about 12.5 ohms at the isolator input port.

17. (New) The tunable isolator circuit of claim 7, wherein the output matching circuit matches a natural output impedance of the isolator to a natural input impedance of the device coupled to the output port of the isolator, and wherein the input matching circuit matches a natural output impedance of the power amplifier to a natural input impedance of the isolator, thereby reducing non-linear distortion of the ferro-electric component and permitting operation at higher power levels.

18. (New) The tunable isolator circuit of claim 17, wherein the device coupled to the output port of the isolator is a duplexer, and wherein the output matching circuit matches from about 12.5 ohms at the isolator output port to about 12.5 ohms at the duplexer input port, and wherein the input matching circuit matches from about 2 ohms at the power amplifier output port to about 12.5 ohms at the isolator input port.

19. (New) A method for reducing non-linear distortion in a ferro-electric component contained in a matching circuit comprising:

integrating the matching circuit and a matched component on one substrate so that impedances can naturally matched.